

上坂原子力委員会委員長の海外出張について

令和4年10月11日

1. 出張先

オーストリア共和国（ウィーン）

2. 出張期間

令和4年10月16日（日）～22日（土）

3. 渡航目的

ウィーンで開催される I A E A のカンファレンス「2022 International Conference on Topical Issues in Nuclear Installation Safety: Strengthening Safety of Evolutionary and Innovative Reactor Designs」のパネルディスカッションに登壇するとともに、I A E A の幹部との意見交換を行う。

4. 主要日程

10月16日（日）東京発

17日（月）ヘルシンキ着

ヘルシンキ発→ ウィーン着

18日（火）～21日（金）

2022 TIC 会合出席、バイ会談。

21日（金）ウィーン発 → パリ着

パリ発

22日（土）東京着

以 上

**INTERNATIONAL CONFERENCE ON TOPICAL ISSUES IN NUCLEAR
INSTALLATION SAFETY:
STRENGTHENING SAFETY OF EVOLUTIONARY AND INNOVATIVE
REACTOR DESIGNS (TIC2022)**

18 October 2022

11:00-13:00

Plenary session #1

Panel discussion

“Towards harmonization of safety approaches: regulatory and industry perspectives”

Moderator

Ms Anna Bradford, DIR-NSNI, IAEA

Invited speakers

Speaker	Organisation	Country	Title of the speech
Rumina VELSHI	CNSC	Canada	The CNSC and the Road to Harmonization: A Plan in Action
Sylvie CADET-MERCIER	ASN	France	EU Initiatives in SMR Licensing
Mitsuru UESAKA	JAEC	Japan	Harmonized Power/Non-Power Applications of Innovative Reactors
Jon BALL	GE-HITACHI	USA	BWRX-300: Design, Licensing, and Commercial Progress
Sama BILBAO Y LEÓN	WNA		Supporting a New Paradigm for Reactor Design Licensing

Session structure

- Opening remarks (A. Bradford)
- Brief speeches by invited speakers (7-10min)
- Proposed questions for the panel discussion
- Q&A session with the audience (*if time allows*)

**INTERNATIONAL CONFERENCE ON TOPICAL ISSUES IN NUCLEAR INSTALLATION SAFETY:
STRENGTHENING SAFETY OF EVOLUTIONARY AND INNOVATIVE REACTOR DESIGNS (TIC2022)**

18–21 October 2022, Vienna

CONFERENCE PROGRAM (draft)

DATE	TIME	SESSIONS			
		Parallel Session 1	Parallel Session 2	Parallel Session 3	Parallel Session 4
18 OCT 2022	8:00 – 9:30	Registration of participants			
	9:30 – 10:30	Opening session			
	10:30 – 11:00	Coffee break			
	11:00 – 13:00	Plenary session #1: Panel discussion “Towards harmonization: regulatory and industry perspectives”			
	13:00 - 14:00	Lunch break			
	14:00 – 15:30	Regulatory & Licensing WENRA, Gisela Stoppa – WENRA safety objectives for Gen 3 plants and their applicability to SMRs ID 197, Raoul Awad; Al Falahi Rashid (ARE) – Innovative regulatory approach for licensing a new nuclear power plant ID 111, Fidel Lizastigui (CUB) – Developing competence of new regulators to tackle SMRs ID 125, Badawy Elsheikh (EGY) – Regulatory challenges and licensing efforts for innovative molten salt reactors	Design Safety Features ID 121, Jing Liu (CHN) – Research on heat pipe conduction device of containment dome ID 122, Maithah Alaleeli (ARE) – Material performance metrics for accident tolerant fuel cladding in pressurised water reactors ID 26, Evgeny Vlasenko (RUS) – Development of the first Russian research molten salt reactor for technology trial of minor actinides burning. Nuclear safety features ID 119, Kai Wang (CHN) – Application of passive cold source system in nuclear power plant design	Safety Demonstration ID 30, Wayne Boyes (ZAF) – A comprehensive thermo-hydraulic neutronic and safety analysis of a 100mwth pebble bed reactor core ID 112, Robert Youngblood (USA) – Application of objectives-driven assurance cases to system development in an evolving acquisition model ID 115, Chen hui Wang (CHN) – Internal flooding safety assessment of small reactor (ACP100) based on advanced 3D simulation software (CNIFA) ID 196, David Holcomb (USA) – Steps towards efficiently demonstrating adequate MSR safety	Simulation & Modelling ID 104, Walter Klein-Hessling (DEU) – Regulatory perspectives on analytical codes and methods for advanced reactors ID 35, Sanjeev Gupta, Ahmed Bentaib (DEU) – IAEA simulation and experimental analyses network information system (SANIS) database: severe accidents experimental facilities, codes and education and training tools ID 56, Sergey Shevchenko (RUS) – The Russian approach to the regulatory review of computer programs used for multi-physics modelling and safety analysis of innovative nuclear installations ID 28, Ahmed Bentaib (OECD, IRSN) – The OECD/NEA working group on the analysis and management of accidents (WGAMA): Advances in codes and analyses to support safety demonstration of nuclear technology innovations
	15:30 – 16:00	Coffee break			
	16:00 – 18:00	International Collaboration & Harmonization IAEA, Paula Calle-Vives (IAEA, NSNI) – NHSI update: Regulatory track IAEA, Stefano Monti (IAEA, NENP) – NHSI update: Industry track ID 88, Donna Williams (USA) – U.S. and Canada cooperation on advanced reactor technologies - progress and challenges ID 109, Allan Carson (WNA) – Collaboration – the key to streamlining nuclear regulation	Design Safety Features ID 29, Wayne Boyes (ZAF) – Advanced Micro Reactor (AMR) ID 40, John Eldridge (GBR) - U-Battery enhancing safety through innovative design ID 131, Junichi Takeuchi (JPN) – Development of MHI integrated small reactor ID 144, Cory Stansbury (USA) – An Integrated design approach to address safety of the Westinghouse LFR: An Innovative pool-type, liquid lead-cooled fast reactor	Safety Demonstration ID 124, Luca Ammirabile (E.C) – GIF integrated safety assessment methodology (ISAM) and guidance for its implementation for novel advanced reactors ID 52, Sebastian Buchholz (DEU) – Potential gaps in safety demonstration methods for LW-SMR identified in the ELSMOR project ID 73, Zoltan Hozer (OECD) – Advances in knowledge, modelling and methods to support safety demonstration of conventional and advanced nuclear fuels in the OECD/NEA working group on fuel safety	Simulation & Modelling IAEA, Nicole Virgili (IAEA, NPTDS) – New agency initiative on fission-fusion technology interfaces ID 160, Christina Dominguez (FRA) – State of the art of IRSN’s studies regarding fuel behaviour during LOCA ID 171, Russell Cipolla (USA) – Development of a structural integrity model for the steam generator tubing of the SMART100 small modular reactor ID 154, Quoc Dung Tran (VNM) – Calculation of the neutron parameters for the accelerator-driven subcritical reactor using Pb and Pb-Bi mixtures as both target and coolant ID 86, Armin Seubert (DEU) – The finite element neutronics code FENNECS for the safety assessment of SMRs, micro reactors and other innovative concepts

Legend:

- Topic 1.** Applying safety approaches and standards for evolutionary and innovative reactor technologies
- Topic 2.** Enhancing safety by innovative design features
- Topic 3.** Supporting integrated decision making through safety/risk analyses
- Topic 4.** Accelerating innovations for safety assessment through the advanced simulation and modelling, and experimental programmes

DATE	TIME	SESSIONS			
		Parallel Session 1	Parallel Session 2	Parallel Session 3	Parallel Session 4
19 OCT 2022	9:00 – 10:30	Plenary session #2: Panel discussion “Safety Demonstrations for evolutionary and innovative reactors: challenges and path forward”			
	10:30 – 11:00	Coffee break			
	11:00 – 12:30	Regulatory & Licensing ID 82, Diego Fernández Lisbona (GBR) – Early assessment of innovative and advanced modular reactor (AMR) designs – regulatory process and insights from application to eight designs in the UK ID 156, Abel Julio Gonzalez (ARG) – A response to the regulatory safety challenges for new reactor technologies ID 192, Surik Bznuni (ARM) – Preliminary gap analysis of Armenian regulatory basis for the licensing of SMR type reactors ID 194, Tarek Tabikh (CAN) – Approach to small modular and advanced reactor regulatory readiness	Defence in Depth by Design ID 152, Marcelo Gimenez (ARG) – CAREM25: An integral methodological approach to coherently internalize defence in depth in the design process ID 103, Etienne Courtin (FRA) – Application of lines of defense (LoD) methodology for defense in depth implementation in the design of Gen 4 reactors ID 83, David Plummer (GBR) – Regulatory perspective on the application of the defence-in-depth concept to innovative reactor technologies ID 155, Artur Liubarskiy (RUS) – Design measures aimed at eliminating cliff-edge effects as a necessary condition for effectiveness of plant defence-in-depth	Deterministic Safety Analysis ID 3, Jozef Misak (CZE) – Issues and needs in applications of deterministic safety analysis for demonstrating safety of nuclear power plants ID 105, Michail Polevoy (RUS) – Determination of temperature condition of absorbing elements for design basic conditions and design extension conditions of nuclear power plants ID 114, Hidemasa Yamano (JPN) – Numerical analyses of design extension conditions for sodium-cooled fast reactor designed in Japan ID 149, Aleksei Samokhin (RUS) – Integrated design analyses of beyond-design-basis accidents at VVER-1200, including fuel severe damage	Simulation & Modelling ID 69, David Grabaskas (USA) – Using calibrated water data for preliminary validation of the SRT code for advanced reactors ID 106, Ronan Tanguy (WNA) – Harmonizing mechanical codes & standards for innovative reactors ID 132, Fulvio Mascari (ITA) – Status of the independent validation of TRACE code for SMR safety analyses ID 8, Mark Bedretdinov (RUS) – Thermal hydraulic codes validation for spent fuel pool conditions
	12:30 – 14:00	Lunch break			
	14:00 – 15:30	Regulatory & Licensing ID 42, Nasir Mughal (PAK) – Regulatory experiences in licensing of advanced reactor technologies ID 140, Simon Coenen (BEL) – Belgian approach for licensing new innovative reactors ID 163, Pablo Torano (ARG) – Argentine experience in the licensing of CAREM 25 prototype reactor ID 89, Rozbeh Vadi (IRN) – A review of the requirements of the licensing procedure for the HTR-PM	Transportable NPP designs IAEA, Mikhail Lankin (IAEA, NSNI) – IAEA activities on design safety and security considerations for the TNPP ID 169, Alexander Bychkov (IAEA, INPRO) – INPRO studies on transportable nuclear power plants and modules and key legal issues for their regulations ID 100, Bernat Cirera (DNK) – Safety approaches for the CMSR power barge ID 147, Daria Doronkova (RUS) – Nuclear floating power unit: Ensuring safety during transportation	PSA & Risk-Informed Decision Making ID 139, David Grabaskas (USA) – The ASME/ANS probabilistic risk assessment standard for advanced non-light water reactor nuclear power plants ID 128, Jeffery Julius (USA) – Changes in PSA models to support the licensing of advanced non-light water reactors ID 98, Karthik Ravichandran (CHE) – Verification of SSC safety classification according to IAEA SSG-30 functional approach: Benefits of DSA and PSA integration ID 126, Dennis Henneke (USA) – Natrium reactor SSC classification using the licensing modernization project (LMP) process	Simulation & Modelling ID 59, Taiju Shibata (JPN) – New test plan about safety features of HTGR by using HTTR in JAEA ID 190, Daniel LaBrier (USA) – Revival of a practical sodium safety culture through experiential training ID 185, Amjad Farooq (PAK) – Experimental investigation of iodine removal in a lab scale setup of filtered containment venting system ID 75, Plamen Petkov (BGR) – Experimental investigation of liquid Tin surface property safety features for potential application as a coolant in direct contact liquid metal fast reactors (DCLMFR) heat removal
	15:30 – 16:00	Coffee break			
	16:00 – 18:00	Safety Approach ID 153, Noredine Mesmous (CAN) – An innovative methodology for designing and regulating small and modular reactors ID 76, Debbie Francis (FRA) – NUWARD safety approach, implementing SMR specifics and preparing international deployment ID 107, Mariano Tarantino (E.C) – GIF LFR safety design criteria ID 127, Satoshi Futagami (JPN) – Development of safety design criteria and safety design guidelines for Generation IV sodium-cooled fast reactors ID 99, Bernat Cirera (DNK) – Toward developing a novel combined licensing & safety approach for advanced nuclear reactors based on the international maritime and nuclear safety framework. Case study of the CMSR power barge.	Design Safety Features ID 60, Shigenobu Kubo (JPN) – Safety design approaches for future SFRs in Japan ID 118, Jingmei Zhu (CHN) – Standard study of the technology and safety performance evaluation on emergency core cooling system strainer ID 37, Mirela Nitoi (ROU) – Towards innovative reactors licensing - ALFRED approach ID 84, Jesse Seymour (USA) – Technology-inclusive human-system considerations for advanced reactors	PSA & Risk-Informed Decision Making ID 193, Dennis Henneke (USA) – Risk-informed safety strategy and fault evaluation for the GE Hitachi BWRX-300 advanced reactor ID 202, Irina Kuzmina (RUS) – Insights on application of some probabilistic considerations for licensing of new nuclear power plants ID 85, Sayed Muhammad Waseen (PAK) – Application of the Level-1 PSA model in various regulatory processes and challenges faced during their execution ID 41, Neil Harman (GBR) – Evolution in Level 3 probabilistic safety assessment methodology for the UK-EPR ID 164, Federic Jose Carlin Llorenete (ARG) – Regulatory criteria proposal for the mission time of the sequences of the event trees of the L1 PSA for new nuclear power reactors	<p style="text-align: center;">PANEL DISCUSSION ON SIMULATION & MODELLING</p> MSCFP, Valeriia Skliarenko – Chinese supercritical water reactor CSR-1000: Safety features and exploration of hydraulic resistance coefficient correlations ID 92, Hiberito Sanchez-Mora (MEX) – BWR severe accident uncertainty and sensitivity analysis in the framework of the IAEA CRP I31033 ID 146, Nikolai Ryzhov (RUS) – Uncertainty and sensitivity analysis of severe accidents simulations at VVER in the framework of the IAEA CRP I31033 ID 157, Pablo Hernan Ilardo (ARG) – Development of uncertainty and sensitivity approaches for the analysis of severe accidents in a small modular reactor

DATE	TIME	SESSIONS			
		Parallel Session 1	Parallel Session 2	Parallel Session 3	Parallel Session 4
20 OCT 2022	9:00 – 10:30	Plenary session #3: Panel discussion “SMR and microreactors: Design challenges and safety implications”			
	10:30 – 11:00	Coffee break			
	11:00 – 12:30	Safety, Security and Safeguards Interfaces (3S) IAEA, Jeremy Whitlock (IAEA, SGCP) – Safeguards by design for SMRs ID 70, Donald Kovacic (USA) – Considering international safeguards during the design of advanced reactors and interfaces with safety and security ID 81, Duncan Barley (GBR) – Safety, security and safeguards working together in the modernised generic design assessment ID 184, Adam Williams (USA) – Lessons learned from exploring safety, security, and safeguards interfaces in advanced and small modular reactor technologies	Severe Accident Management IAEA, Alexei Miasoedov (IAEA, NENP) – SAMG-D toolkit ID 46, Gaojian Dang (CHN) – The development and validation of the accident prevention and mitigation strategy for the ACP100 modular small reactor ID 172, Wei Wei (CHN) – Development and application of a severe accident management guidelines verification and drilling platform at CNNP ID 50, Ahmed Bentaib (ESP) – NUGENIA/TA2 recent achievements in severe accidents research	PSA & Risk-Informed Decision Making ID 110, Anders Gilbertson (USA) – U.S. nuclear regulatory commission guidance on the acceptability of probabilistic risk assessment used in regulatory decision making for non-light-water reactors ID 93, Tanju Sofu (USA) – GIF framework for risk-informed approach for design and licensing of novel advanced reactors ID 58, Stephan M Hess (USA) – Integrated RAMI for advanced nuclear power plants ID 175, Elisabeth Duvillard (FRA) – Incorporation of passive system functional reliability in probabilistic safety assessment	Simulation & Modelling ID 45, Evgenii Soldatov (RUS) – System of design codes for the computational modeling of the lead-cooled fast reactors ID 51, Sebastian Buchholz (DEU) – Recent improvements of ATHLET models for passive safety features of LW-SMR ID 27, Peter Lien (USA) – TRACE confirmatory analysis model development and validation in NuScale design ID 159, Michael Martin (GBR) – Enhanced safety of current and future nuclear plant using integrated mechanistic models and data-centric assessment of risk
	12:30 - 14:00	Lunch break			
	14:00 – 15:30	Safety, Security and Safeguards Interfaces (3S) ID 173, Carolyn Scherer (IAEA) – Using INPRO methodology for a holistic sustainability assessment in safety, safeguards and security (3S) ID 123, Luca Ammirabile (EC) – Application of the objective provision tree tool for the safety-security interface assessment ID 25, Ismael Garcia (USA) – Impact of cyber security features on digital instrumentation and control systems important to safety at nuclear power plants – evaluation framework ID 24, Ismael Garcia (USA) – U.S.A. regulatory efforts for cybersecurity of small modular reactors/advanced reactors	Passive Systems ID 54, Aleksei Samokhin (RUS) – Evaluation of the innovative steam generators passive heat removal system efficiency for VVER-1200 power units in beyond design basis accidents conditions ID 133, Petr Vácha (CZE) – Innovative passive safety features of the HeFASTo Reactor Concept ID 199, Yidan Yuan (CHN) – An experimental program for ACP100 passive containment air cooling system ID 189, Chukwudi Azih (CAN) – Development of experimental and modelling capabilities and tools at Canadian nuclear laboratories for investigations on inherent and passive safety designs of advanced reactor concepts	PSA & Risk-Informed Decision Making ID 36, Na Xue (CHN) – Application of probabilistic method in the EPZ determination of SMR ID 94, Shilp Vasavada (USA) – Insights for risk-informed approaches to sizing emergency planning zones ID 162, Luke Lebel (CAN) – Challenges in defining emergency planning zones for small modular reactors and advanced reactors: Review of Canadian practices and research at Canadian nuclear laboratories ID 135, Eric Schrader (USA) – An alternative emergency preparedness regulatory framework for small modular reactors and other new technologies	Simulation & Modelling ID 161, Christophe Herer (FRA) – Natural circulation HERO-2 experiment simulations in the EU funded PASTEL Project ID 91, Shanlai Lu (USA) – Long term effects and numerical simulation of radiolytic gas, non-condensable gas and boron transport for small modular light water reactors ID 188, Krishna Podila (CAN) – Development of multiphysics modelling capabilities for small modular reactors in Canada ID 39, Victor Sanchez Espinoza (DEU) – Status of the H2020 McSAFER project-experimental and analytical investigations for the safety evaluation of water-cooled SMRs
	15:30 – 16:00	Coffee break			
	16:00 – 18:00	PANEL DISCUSSION ON SAFETY, SECURITY AND SAFEGUARDS INTERFACES AND CHALLENGES (3S)	Passive Systems ID 57, Finis Southworth (USA) – The effect of intermittent passive heat removal on HTGR conduction cooldown performance ID 148, Oleg Tiurikov (RUS) – Experimental and computational research of the containment passive emergency pressure decrease system in the floating NPP with reactor KLT-40S and universal nuclear-powered icebreaker with reactor RITM-200 ID 186, Federico Mezio (ARG) – Uncertainty assessment of a CAREM 25 passive safety system: Lifecycle management study case ID 129, Muhammad Ilyas (PAK) – Thermal hydraulic analysis of a novel concept for a passive containment cooling system MSCFP, Nurberk Sungur – Assessment of VVER-1200 (V-491) core cooling reliability during the operation of passive heat removal system via steam generator	PSA & Risk-Informed Decision Making ID 97, Karthik Ravichandran (CHE) – Synergizing deterministic and probabilistic safety analyses - a holistic approach to safety at Leibstadt NPP, Switzerland ID 134, Yasushi Okano (JPN) – ARKADIA-Safety, an overall risk assessment simulation tool for risk integrated and performance based decision making ID 168, Gueorgui Petkov (BGR) – Contextual integrated risk-informed decision-making ID 182, David Grabaskas (USA) – Markov decision processes for intelligent, risk-informed asset-management decision-making	Simulation & Modelling ID 67, Yury Shmelkov (RUS) – Practical application of sensitivity and uncertainty analyzes in the analysis of radiological consequences for BDBA at modern NPPs with VVER ID 137, Pavel Kanin (RUS) – Practical application of uncertainty and sensitivity analysis methodologies for the analysis of severe accidents in VVER reactors ID 95, Kwang-il Ahn (KOR) – Uncertainty and sensitivity analysis of the PWR and SMR by means of severe accident codes in the framework of the IAEA CRP 131033 ID 33, Ashraf Aboshosha (EGY) – Computer aided design and simulation of professional hybrid electrical energy backup system for nuclear facilities

DATE	TIME	SESSIONS			
		Parallel Session 1	Parallel Session 2	Parallel Session 3	Parallel Session 4
21 OCT 2022	9:00 – 10:30		<p align="center">External Hazards</p> <p>IAEA, Laura Micewski (IAEA, NSNI) – External hazards related issues in SMR siting and design ID 64, Miguel Peinador (FRA) – Main lessons learned from the clearinghouse topical operational experience report (TOER) on external hazards and their possible use for the design of new reactors ID 78, Karel Deknopper (BEL) – External hazard challenges for evolutionary and innovative reactor designs ID 181, David Grabaskas (USA) – The regulatory treatment of low frequency external events as part of a risk-informed performance-based approach</p>	<p align="center">Multi-unit & Multi-module Risk Analysis</p> <p>IAEA, Shahen Poghosyan (IAEA, NSNI) – IAEA methodology on multi-unit probabilistic safety assessment ID 145, Dennis Henneke (USA) – Multi-module probabilistic safety assessment (PSA) for the PRISM sodium-cooled fast reactor ID 66, Abdul Qavi (PAK) – Probabilistic safety assessment of multi unit site of nuclear power plant MSCFP, Yanfei Qiu – Neutronics design and modelling of a NUSCALE-based small modular PWR</p>	<p align="center">Artificial Intelligence</p> <p>IAEA, Tatjana Jevremovic (IAEA, NENP) and Yun Goo Kim (IAEA, NSNI) – IAEA activities on artificial intelligence (joint presentation by IAEA NE and IAEA NS) ID 63, Adolphus Lye (GBR) – Probabilistic AI for prediction of material properties in nuclear reactors ID 170, Guoyang Ma (CHN) – The design and application of the intelligent accident analysis system for the nuclear power plant ID 176, Samuele Meschini (ITA) – Machine learning applications for nuclear safety: An overview</p>
	10:30 – 11:00	Coffee break			
	11:00 – 13:00	Closing session			
	13:00	Adjourn			